

AMENDMENTS TO THE CLAIMS

1. (Previously Presented) An automated apparatus for performing reaction kinetics studies, the apparatus comprising:
 - a plurality of reaction blocks including at least one hot reaction block for heating one or more reaction vessels and at least one cold reaction block for cooling the one or more reaction vessels after heating thereof;
 - a robotic device for transferring one reaction vessel from one hot reaction block to one cold reaction block; and
 - a controller having a user interface for inputting a predetermined temperature profile and a predetermined sampling interval, the controller being in communication with the plurality of reaction blocks and the robotic device so as to instruct the robotic device to transfer one reaction vessel from one hot reaction block to one cold reaction block at a predefined transfer time within the predetermined sampling interval, the predetermined temperature profile representing the temperature of at least one of the hot reaction blocks over a time period of the study;
 - wherein the controller is configured so that both isothermal and nonisothermal temperature profiles can be performed in the same apparatus.
2. (Original) The apparatus of claim 1, wherein each of the hot and cold reaction blocks has a plurality of openings formed therein, one opening receiving one reaction vessel.
3. (Original) The apparatus of claim 1, further including:
 - a heating device associated with each of the hot reaction blocks for controlled heating thereof; and
 - a cooling device associated with each of the cold reaction

14. (Previously Presented) The apparatus of claim 13, wherein the temperature control device comprises one of a single loop, dual loop, and multi-loop temperature controller.
15. (Previously Presented) The apparatus of claim 13, wherein the temperature monitoring device is a resistance temperature detector.
16. (Previously Presented) An automated apparatus for performing reaction kinetics studies, the apparatus comprising:
 - a plurality of reaction blocks including at least one hot reaction block for heating one or more reaction vessels and at least one cold reaction block for cooling the one or more reaction vessels after heating thereof;
 - a robotic device for transferring one reaction vessel from one hot reaction block to one cold reaction block; and
 - a controller having a user interface for inputting a predetermined temperature profile and a predetermined sampling interval, the controller being in communication with the plurality of reaction blocks and the robotic device so as to instruct the robotic device to transfer one reaction vessel from one hot reaction block to one cold reaction block at a predefined transfer time within the predetermined sampling interval, the predetermined temperature profile representing the temperature of at least one of the hot reaction blocks over a time period of the study;
 - wherein the predetermined temperature profile is an isothermal temperature profile.
17. (Canceled)
18. (Previously Presented) An automated apparatus for performing reaction kinetics studies, the apparatus comprising:

a plurality of reaction blocks including at least one hot reaction block for heating one or more reaction vessels and at least one cold reaction block for cooling the one or more reaction vessels after heating thereof;

a robotic device for transferring one reaction vessel from one hot reaction block to one cold reaction block;

a controller having a user interface for inputting at least (1) a number of reaction vessels for the study, (2) a first predetermined temperature profile and a second predetermined temperature profile, (3) a predetermined study time period beginning with a start time and ending with a stop time, and (4) a selected kinetics model, wherein the controller is in communication with the hot and cold reaction blocks and the robotic device, the controller including an operating system which instructs the robotic device to transfer the plurality of reaction vessels from one hot reaction block to one cold reaction block at predefined transfer times and wherein at least one of the hot reaction blocks is heated according to the first predetermined temperature profile over the study time period, the controller collecting and storing kinetics data for each reaction vessel transfer, the kinetics data at least including a temperature of the hot reaction block at each transfer time and a sampling time when each reaction vessel transfer from the hot reaction block to the cold reaction block occurred; and

wherein the kinetics data is fitted to the selected kinetics model inputted by the user to generate a representative temperature vs. time graph, wherein the first predetermined temperature profile is a nonisothermal temperature profile and the second predetermined temperature profile comprises an isothermal temperature profile.

19. (Previously Presented) The apparatus of claim 20, wherein the hot reaction block has a number of openings formed therein for receiving a

number of reaction vessels, the hot reaction blocks being connected to one or more heating devices with one or more temperature control devices being associated with the one or more heating devices for setting the temperature of one or more hot reaction blocks and wherein each cold reaction block has a number of openings formed therein for receiving a number of reaction vessels, the cold reaction blocks being connected to one or more cooling devices with one or more temperature control devices being associated with the one or more cooling devices.

20. (Previously Presented) An automated apparatus for performing reaction kinetics studies, the apparatus comprising:

a plurality of reaction blocks including at least one hot reaction block for heating one or more reaction vessels and at least one cold reaction block for cooling the one or more reaction vessels after heating thereof;

a robotic device for transferring one reaction vessel from one hot reaction block to one cold reaction block;

a controller having a user interface for inputting at least (1) a number of reaction vessels for the study, (2) a first predetermined temperature profile and a second predetermined profile, (3) a predetermined study time period beginning with a start time and ending with a stop time, wherein the controller is in communication with the hot and cold reaction blocks and the robotic device, the controller including an operating system which instructs the robotic device to transfer the plurality of reaction vessels from one hot reaction block to one cold reaction block at predefined transfer times and wherein at least one of the hot reaction blocks is heated according to the first predetermined temperature profile over the study time period, the controller collecting and storing kinetics data for each reaction vessel transfer, the kinetics data at least including a temperature of the hot reaction block at each

transfer time and a sampling time when each reaction vessel transfer from the hot reaction block to the cold reaction block occurred; and

wherein the user interface has a first display screen having a first display window where a temperature vs. time graph for the study is displayed and a plurality of a user input display windows which display user inputted information including the predetermined temperature profile and the predetermined study time period and the number of reaction vessels, wherein the first predetermined temperature profile is a nonisothermal temperature profile and the second temperature profile comprises an isothermal temperature profile.

21. (Original) The apparatus of claim 20, wherein the user interface includes a model fit window where a selected model fit program is displayed and the kinetics data is fitted to the desired kinetics model fit program to generate the temperature vs. time graph.
22. (Previously Presented) The apparatus of claim 20, wherein the controller includes a master control display screen having simulated hot and cold reaction block displays which indicate locations of the reaction vessels within each of the hot and cold reaction blocks.
23. (Original) The apparatus of claim 22, wherein the master control display screen has a thermometer display associated with each of the hot and cold reaction blocks, each thermometer display having a graphic thermometer display indicating a temperature of the associated one of the hot and cold reaction blocks and a second display window for numerically indicating the temperature of the associated one of the hot and cold reaction blocks.
24. (Original) The apparatus of claim 20, wherein the robotic device includes a gripping mechanism for gripping and transferring one reaction vessel

from the hot reaction block to the cold reaction block at one of the predefined transfer times.

25. (Original) The apparatus of claim 24, wherein the gripping mechanism includes a first finger and a second opposing finger with a space therebetween, one reaction vessel being disposed within the space and held between the first and second fingers during the transfer of the one reaction vessel from the hot reaction block to the cold reaction block.
26. (Original) The apparatus of claim 24, wherein the controller includes a master clock and a count-down clock, the master clock displaying a remaining time left in the study and the count-down clock displaying a remaining time before the next transfer of one of the reaction vessels.
27. (Previously Presented) The apparatus of claim 1, wherein data associated with a chemical reaction occurring in each reaction vessel is collected and logged as a single data point for display on a corresponding graph.
28. (Previously Presented) A method of performing reaction kinetics studies and collecting data using an automated apparatus, the method comprising:
 - providing the automated apparatus, the apparatus including:
 - a plurality of reaction blocks including at least one hot reaction block for heating one or more reaction vessels and at least one cold reaction block for cooling the one or more reaction vessels after heating thereof;
 - a robotic device for transferring one reaction vessel from one hot reaction block to one cold reaction block; and
 - a controller having a user interface and being in communication with the robotic device;

reaction vessels, the one reaction vessel then being delivered to one of the cold reaction blocks for storage thereat.

30. (Previously Presented) The method of claim 32, wherein the gripping mechanism includes a first finger and a second finger with a space therebetween, one reaction vessel being disposed within the space and held between the first and second fingers during the transfer, the gripping mechanism being operated by:

toggling a predetermined pressure between first and second lines, the gripping mechanism closing about the one reaction vessel when the pressure is applied to the first line and the second line is vented, the gripping mechanism being opened to release the one reaction vessel by applying the pressure to the second line with the first line being vented.

31. (Previously Presented) The method of claim 32, wherein the at least one hot reaction block is heated by a heating device, the heating device having a temperature control device and a temperature monitoring device associated therewith, the temperature control device maintaining the temperature of the at least one hot reaction block according to the first input.

32. (Previously Presented) A method of performing reaction kinetics studies and collecting data using an automated apparatus, the method comprising:

providing the automated apparatus, the apparatus including:

a plurality of reaction blocks including at least one hot reaction block for heating one or more reaction vessels and at least one cold reaction block for cooling the one or more reaction vessels after heating thereof;

a robotic device for transferring one reaction vessel

